Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-3. (Canceled)

4. (Currently Amended) A computer-implemented method of automatically re-arranging nodes in a display, the method comprising:

displaying a plurality of nodes in a first configuration on a display, wherein each node has associations with one or more nodes, each association being represented by a physical connector between the associated nodes on the display; and

automatically re-arranging the displayed nodes to a second configuration such that a total length of all connectors is minimized and such that a number of overlapping connectors is minimized, ~~The method of claim 1, wherein~~ automatically re-arranging the displayed nodes to a second configuration ~~includes~~ including:

iteratively, for each node:

a) re-positioning the node to one of a plurality of pre-designated coordinates so as to form a temporary configuration;

b) performing a relaxation process on the temporary configuration;

c) determining a number of overlapping connectors in the temporary configuration;

d) if the number of overlapping connectors is less than a previous number of overlapping connectors, storing the pre-designated coordinates as new coordinates for the node;

e) repeating a) through d) for each of the remaining plurality of pre-designated coordinates, wherein the coordinates for all other nodes in the first configuration are used during steps a) through d); and thereafter

determining the second configuration using the new coordinates stored in d), if any, for each node.

5. (Currently amended) The method of claim 4, wherein performing a relaxation process includes, iteratively, for each first node of said plurality of nodes to be displayed: ~~(first node):~~

i) iteratively, for each remaining second node of the plurality of nodes: ~~(second node):~~

calculating a first distance between the first node and the second node; and

if the first distance is not equal to a target length, calculating a displacement in each of the pair of display coordinates for the first node that would reduce a difference between the target length and the first distance; and thereafter

ii) moving the first node according to the calculated displacement.

6. (Original) The method of claim 5, wherein calculating a displacement includes:

if the first distance is greater than a target length and if the first node and the second node have an association, calculating a displacement in each of the pair of display coordinates for the first node that would reduce the first distance; and

if the first distance is less than the target length, calculating a displacement in each of the pair of display coordinates for the first node that would increase the first distance.

7. (Currently Amended) The method of claim 5, wherein the calculated displacement in each of the pair of coordinates is proportional to the equation :

$$\frac{1}{target\_length} - \frac{target\_length}{(first\_distance)^2} \div$$

~~(1/target length - target length /(first distance)^2).~~

8. (Original) The method of claim 5, wherein the calculated displacement in each of the pair of coordinates is proportional to the number of associations between the first node and the second node, if any.

9. (Original) The method of claim 5, further including calculating a cumulative displacement, and if the cumulative displacement is smaller than a target displacement value, repeating steps i) and ii) for each node.

10. (Canceled)

11. (Currently Amended) A computer-implemented method of automatically arranging a plurality of nodes in a display, wherein each node has associations with one or more nodes, each association being represented by a physical connector between the associated nodes on the display, the method comprising:

determining an original configuration of a plurality of nodes to be displayed, each node having a pair of display coordinates;

determining the associations for each node, each association to be represented on the display as a physical connector between the associated nodes;

determining a node configuration wherein a total length of all connectors is minimized and wherein a number of overlapping connectors is minimized; and

displaying the plurality of nodes in said node configuration on the display,

~~The method of claim 10,~~ wherein determining a node configuration includes:

iteratively, for each node to be displayed:

a) re-positioning the node to one of a plurality of pre-designated coordinates in the original configuration so as to form a temporary configuration;

b) performing a relaxation process on the temporary configuration;

c) determining a number of overlapping connectors in the temporary configuration;

d) if the number of overlapping connectors is less than a previous number of overlapping connectors, storing the pre-designated coordinates as new coordinates for the node;

e) repeating a) through d) for each of the remaining plurality of pre-designated coordinates, wherein the coordinates for all other nodes in the original configuration are used during steps a) ~~tthrough~~ through d); and thereafter

determining the node configuration using the new coordinates stored in d), if any, for each node.

12. (Currently Amended) The method of claim 11, wherein performing a relaxation process includes, iteratively, for each first node of said plurality of nodes to be displayed: ~~(first node):~~

i) iteratively, for each remaining second node of the plurality of nodes: ~~(second node):~~

calculating a first distance between the first node and the second node; and

if the first distance is not equal to a target length, calculating a displacement in each of the pair of display coordinates for the first node that would reduce a difference between the target length and the first distance; and thereafter

ii) moving the first node according to the calculated displacement.

13. (Original) The method of claim 12, wherein calculating a displacement includes:

if the first distance is greater than a target length and if the first node and the second node have an association, calculating a displacement in each of the pair of display coordinates for the first node that would reduce the first distance; and

if the first distance is less than the target length, calculating a displacement in each of the pair of display coordinates for the first node that would increase the first distance.

14. (Currently Amended) The method of claim 12, wherein the calculated displacement in each of the pair of coordinates is proportional to the equation:

$$\frac{1}{target\_length} - \frac{target\_length}{(first\_distance)^2}.$$

~~(1/target length - target length /(first distance)^2).~~

15. (Original) The method of claim 12, wherein the calculated displacement in each of the pair of coordinates is proportional to the number of associations between the first node and the second node, if any.

16. (Original) The method of claim 12, further including calculating a cumulative displacement, and if the cumulative displacement is smaller than a target displacement value, repeating steps i) and ii) for each node.

17. (Currently Amended) The method of claim [[10]] 11, wherein the nodes represent objects in a UML diagram.

18. (Original) The method of claim 17, wherein the connectors represent associations between objects.

19. (Currently Amended) A computer system configured to automatically re-arrange nodes in a display, the system comprising:

a display for displaying node configurations, wherein a plurality of nodes is displayed in a first configuration on the display, wherein each node has associations with one or more nodes, each association being represented by a physical connector between the associated nodes on the display; and

means for automatically re-arranging the displayed nodes to a second configuration on the display such that a total length of all connectors is minimized and such that a number of overlapping connectors is minimized, the automatic re-arranging of the displayed nodes to a second configuration including:

iteratively, for each node:

a) re-positioning the node to one of a plurality of pre-designated coordinates so as to form a temporary configuration;

b) performing a relaxation process on the temporary configuration;

c) determining a number of overlapping connectors in the temporary configuration;

d) if the number of overlapping connectors is less than a previous number of overlapping connectors, storing the pre-designated coordinates as new coordinates for the node;

e) repeating a) through d) for each of the remaining plurality of pre-designated coordinates, wherein the coordinates for all other nodes in the first configuration are used during steps a) through d); and thereafter

determining the second configuration using the new coordinates stored in d), if any, for each node.

20. (Original) The system of claim 19, wherein the nodes represent objects in a UML diagram and wherein the connectors represent associations between objects.

21. (Currently Amended) A computer system configured to automatically arrange nodes in a display, wherein each node has associations with one or more nodes, each association being represented by a physical connector between the associated nodes on the display, the system comprising:

means for determining an original configuration of a plurality of nodes to be displayed, each node having a pair of display coordinates;

means for determining the associations for each node, each association to be represented on the display as a physical connector between the associated nodes;

means for determining a node configuration wherein a total length of all connectors is minimized and wherein a number of overlapping connectors is minimized; and

a display for displaying node configurations, wherein the plurality of nodes are displayed in said node configuration on the display.

wherein the means for determining a node configuration includes the automatic re-arranging of the nodes to be displayed by:

iteratively, for each node:

a) re-positioning the node to one of a plurality of pre-designated coordinates so as to form a temporary configuration;

b) performing a relaxation process on the temporary configuration;

c) determining a number of overlapping connectors in the temporary configuration;

d) if the number of overlapping connectors is less than a previous number of overlapping connectors, storing the pre-designated coordinates as new coordinates for the node;

e) repeating a) through d) for each of the remaining plurality of pre-designated coordinates, wherein the coordinates for all other nodes in the first configuration are used during steps a) through d); and thereafter

determining the configuration using the new coordinates stored in d), if any, for each node.

22. (Original) The system of claim 21, wherein the nodes represent objects in a UML diagram and wherein the connectors represent associations between objects.

23. (New) The method of claim 4, wherein the nodes represent objects in a UML diagram.

24. (New) The method of claim 23, wherein the connectors represent associations between objects.